direction corresponding to the outer area OA of the substrate **100**, even if stress is applied to the border ED of the substrate **100**, the stress is blocked by the opening OP, and thus the stress transmitted to the display unit **200** is minimized.

[0124] In embodiments, by including the first insulating layer CIL with the plurality of openings OP, the wavy line CL, and the cover layer CP, the display device with improved durability is provided.

[0125] Referring to FIGS. **1** to **5**, in embodiments, a display device includes a substrate **100** and is divided into a display section DA and a boundary section OA which may completely or partially surround the display section when viewed in a viewing direction perpendicular to a major surface of the substrate. In the display section, the display device includes an array of pixels, each of which includes an organic light emitting diode OLED and at least a thin film transistor TFT electrically connected to the organic light emitting diode. The boundary section OA may extend along the edge or side ED of the display.

[0126] The display device includes a base insulation layer IL**1**, a gate insulation layer IL**2** and an interlayer insulation layer IL**3** which are sequentially stacked in the boundary section OA to form an integrated insulation layer CIL. The layer CIL may be formed with an inorganic material and may be brittle. Thus, cracks may be created in the layer CIL by impacts applied to the edge or side ED or by bending the display device, and may be propagated or transmitted toward portions of the layer CIL in the display section. To avoid or minimize such propagation, in embodiments, a plurality of openings OP are formed in the portions of the layer CIL located in the boundary section OA. The openings OP may form a pattern. In embodiments, the openings OP may be arranged to be spaced from each other in a first direction (for example, a direction generally perpendicular to the side ED).

[0127] In embodiments, each opening OP may be a hole, a pit, a trench, a groove, a channel or a notch. In one embodiment, the openings OP may extend generally in parallel to the side ED when viewed in the viewing direction. In another embodiment, the openings OP may be a plurality of holes arranged in the boundary section OA. In embodiments, the opening OP may be a through-hole formed through the layer CIL. The opening may be a hole formed through one or two among the sub-layers IL**1**, IL**2** and IL**3**. (See FIGS. **3**-**5**.)

[0128] An undulating conductive material line CL is formed to cross the openings OP when viewed in the viewing direction. The line CL may extend in the first direction while contacting the top surface of the layer CIL and the side surfaces of the bottom surfaces of the openings OP such that the line CL is undulating. When making the display, in embodiments, an electrically conductive material or metal may be formed over the layer CIL with the openings OP and patterned to form the undulating line CL as well as the source and drain electrodes SE and DE. In one embodiment, the undulating line CL may be used to transmit an electric signal from a driver to the pixels. In another embodiment, the undulating line CL is not used as an electric line or wire. The undulating structure of the line CL may minimize or avoid the risk of breakage which may be caused by the cracks in the layer CIL. Further, in embodiments, the undulating structure of the metal line CL may provide durability to the layer CIL.

[0129] In embodiments, the openings OP may be covered and filled with another material, for example, an organic material. In the illustrated embodiment, the cover layer CP covers the openings OP.

[0130] While this disclosure has been described in connection with what is presently considered to be practical embodiments, it is to be understood that the invention is not limited to the disclosed embodiments, but, on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

What is claimed is:

1. A display device comprising:
- a substrate comprising an outer area neighboring a border;
- an insulating layer positioned over the substrate and comprising a plurality of openings positioned over the outer area, the plurality of openings being arranged to be spaced from each other in a direction; and
- a wavy line extending in the direction and passing the plurality of openings.

2. The display device of claim **1**, wherein the wavy line is curved and extends along the top surfaces of the insulating layer and the bottom surfaces of the plurality of openings.

3. The display device of claim **1**, wherein the wavy line contacts the insulating layer.

4. The display device of claim **1**, further comprising a cover layer covering the plurality of openings and the wavy line.

5. The display device of claim **4**, wherein the cover layer has an island shape.

6. The display device of claim **4**, wherein the cover layer comprises an organic material.

7. The display device of claim **6**, wherein the insulating layer comprises an inorganic material.

8. The display device of claim **1**, further comprising a display unit neighboring the outer area and positioned over the substrate and comprising an array of pixels.

9. The display device of claim **8**, wherein each pixel of the display unit comprises:
- an organic light emitting element positioned on the substrate; and
- a thin film transistor connected to the organic light emitting element.

10. The display device of claim **9**, wherein the organic light emitting element comprises:
- a first electrode connected to the thin film transistor;
- an organic emission layer positioned over the first electrode; and
- a second electrode positioned over the organic emission layer.

11. The display device of claim **9**, wherein the thin film transistor comprises:
- an active layer positioned over the substrate;
- a gate electrode positioned over the active layer; and
- a source electrode and a drain electrode connected to the active layer.

12. The display device of claim **11**, wherein the wavy line is positioned on a layer the same as that of at least one of the gate electrode and the source electrode.

13. The display device of claim **11**, wherein the insulating layer further comprises a first sub-insulating layer covering the gate electrode.

14. The display device of claim **13**, wherein the plurality of openings are formed in the first sub-insulating layer.